

REMARKS

Reconsideration and allowance of the subject application are respectfully requested. Claims 1-15 remain pending. Upon entry of the amendments presented herein, claims 1, 3, 7, 9, 10, and 12 are independent claims.

In this Reply, Applicants have amended independent claims 1 and 12, in a manner discussed in more detail below, to more clearly distinguish over the applied prior art, particularly *Schwartz* (U.S. Patent 3,980,819). Based on the Examiner's indication of allowability, Applicants have also rewritten claims 3, 7, 9, and 10 in independent form. In amending claim 3 to be an independent claim, Applicants have changed the phrase "a second horizontal deflection element" to --a horizontal deflection element-- to improve clarity, since the claim does not recite multiple horizontal deflection elements. Dependent claims 11 and 15 have been amended to address similar clarity issues.

Allowable Subject Matter

Applicants appreciate the Examiner's indication that claims 3, 4, and 6-11 would be allowable if rewritten in independent form to include the limitations of their base claim and any intervening claims. In this Reply, Applicants have rewritten claims 3, 7, 9, and 10 in independent form. Therefore, these claims, and claims depending therefrom, should now be indicated as allowable. Furthermore, Applicants respectfully submit that all pending claims

should be indicated as allowable at least based on the reasons set forth in detail below.

Prior Art Rejections

Claims 1, 2, 5, and 12-14 stand rejected under 35 U.S.C. § 102 as allegedly being anticipated by *Schwartz*; claim 15 stands rejected under 35 U.S.C. § 103 as allegedly being unpatentable over *Schwartz* in view of admitted prior art Fig. 9. These rejections, insofar as they pertain to the presently pending claims, are respectfully traversed.

Independent claim 1 is directed to a screen-noise eliminating apparatus comprising: a beam-spot-length control element for controlling the vertical length of a beam spot on a display screen generated by an electron beam of a cathode-ray tube for displaying a TV signal, the beam-spot-length control element operating to create a beam spot in a first state when a number of scanning lines in the TV signal exceeds a certain number, and operating to create a beam spot in a second state when a number of scanning lines in the TV signal is less than a certain number, wherein the beam spot has a greater vertical beam length in the second state than in the first state; a vertical enhancement element for enhancing a given vertical-direction spatial frequency characteristic of the TV signal; and a noise elimination control element for controlling the beam-spot-length control element and the vertical enhancement element so as to compensate the

vertical-direction spatial frequency characteristic according to the beam spot length resulting from operation of the beam-spot-length control element.

Independent claim 12 is directed to a cathode-ray tube display apparatus comprising: a cathode-ray tube for displaying a TV signal; an electron-beam driving element for driving an electron beam of the cathode-ray tube; and a screen-noise eliminating apparatus, wherein the screen-noise eliminating apparatus comprises: a beam-spot-length control element controlling the length of a beam spot on a display screen generated by the electron beam in the vertical direction, the beam-spot-length control element operating to create a beam spot in a first state when a number of scanning lines in the TV signal exceeds a certain number, and operating to create a beam spot in a second state when a number of scanning lines in the TV signal is less than a certain number, wherein the beam spot has a greater beam length in the second state than in the first state; a vertical enhancement element for enhancing a given vertical-direction spatial frequency characteristic of the TV signal; and a screen-noise elimination control element for controlling the beam-spot-length control element and the vertical enhancement element so as to compensate the vertical-direction spatial frequency characteristic according to the beam spot length resulting from operation of the beam-spot-length control element.

Thus, as emphasized by the amendments presented herein, beam-spot-size is controlled based on the number of scanning lines in the received signal. For example, when a received TV signal has a maximum number of scanning lines, there may be no need to change the beam spot from a nominal size. On the other hand, when the TV signal has less than a maximum number of scanning lines, the beam-spot-size may be increased (e.g., via wobbling or de-focus) to eliminate undesired gaps between scanning lines. The presently-claimed invention implements vertical-direction spatial frequency enhancement in addition to controlling the beam-spot-size to improve image quality, such that the beam-spot-size is controlled as a function of the number of scan lines in the TV signal and other image quality factors.

The applied reference, *Schwartz*, discloses a technique for enhanced sharpness of television images. More specifically, the apparatus described in *Schwartz* attempts to solve the following problem discussed in the Background section:

In most cathode ray tubes, the spot size of the electron beam increases significantly as the beam current is increased. Therefore, when a large black-to-white video transition occurs, i.e., when a TV image includes a white area immediately following a black area, the spot size of the beam grows concurrently with the increase in the luminance signal. To a television viewer, the overall effect of the growth of the spot size is that, in the case of a white stripe on a black field, for example, the edges of the stripe will appear to be blurred with the white area expanded because of the large spot size and the black area correspondingly reduced.

As discussed for example at col. 5, lines 1-18 (cited by the Examiner), *Schwartz* addresses this drawback of luminance-based fluctuations in beam spot size by modulating the scanning velocity of the CRT electron beam when video amplitude transition occurs. As seen for example by the comparison of Figs. 3 and 4, this modulation of scanning velocity adjusts the leading edge of the beam spot so as to prevent the blurring effect seen in Fig. 3.

As compared to the presently claimed invention, however, *Schwartz* does not provide the combination of beam-spot-length control as a function of the number of TV signal scanning lines and a noise-elimination control element that controls such a beam-spot-length control element and a vertical enhancement element, as claimed.

At least in view of the above, Applicants respectfully submit that *Schwartz* fails to anticipate independent claims 1 or 12, or any claim depending therefrom. Furthermore, the Examiner's reliance on prior art Fig. 9 fails to make up for the deficiencies of *Schwartz*.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the Examiner's rejections based on *Schwartz*.

Conclusion

Applicants respectfully request that the Examiner enter the amendments presented herein. The amendments to independent claims 1

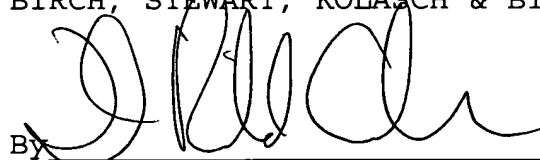
and 12 are believed to even more clearly define these claims over the applied prior art, particularly *Schwartz*, and thereby place these claims in condition for allowability. Furthermore, the remaining claim amendments are not believed to raise issues that would require further consideration and/or search.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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